FlyBy Math™ Alignment
Montana Standards for Mathematics 10/98

Content Standard 1: Students engage in the mathematical processes of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology.

Benchmarks: End of Grade 8

Students will:	***FlyBy Math*™ Activities**
1. formulate and solve multi-step and nonroutine problems using a variety of strategies. Generalize methods to new problem situations.	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.
2. select and apply appropriate estimation strategies throughout the problem-solving process.	--Predict outcomes and explain results of mathematical models and experiments.
3. interpret and communicate mathematical ideas and logical arguments using correct mathematical terms and notations.	--Predict outcomes and explain results of mathematical models and experiments.
4. recognize and investigate the relevance and usefulness of mathematics through applications, both in and out of school.	--Apply mathematics to predict and analyze aircraft conflicts and validate through experimentation.

Content Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.

Benchmarks: End of Grade 8

Students will:	***FlyBy Math*™ Activities**
3. use the relationships and applications of ratio, proportion, percent, and scientific notation.	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.

Content Standard 3: Students use algebraic concepts, processes, and language to model and solve a variety of real-world and mathematical problems.

Benchmarks: End of Grade 8

Students will:	***FlyBy Math*™ Activities**
2. represent situations and number patterns using tables, graphs, verbal rules, equations, and models.	--Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.

Content Standard 4: Students demonstrate understanding of shape and an ability to use geometry.	
Benchmarks: End of Grade 8	
Students will: 3. represent geometric figures on a coordinate grid.	***FlyBy Math™* Activities** --Plot points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system to describe the motion of two airplanes.
5. use geometry as a means of describing the physical world.	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.

Content Standard 5: Students demonstrate understanding of measurable attributes and an ability to use measurement processes.	
Benchmarks: End of Grade 8	
Students will: 1. estimate, make, and use measurements to describe, compare and/or contrast objects in real-world situations.	***FlyBy Math™* Activities** --Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation. --Compare airspace scenarios for both the same and different starting conditions and the same and different rates.
2. select and use appropriate units and tools to measure to a level of accuracy required in a particular setting.	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.
5. use the concepts of rates and other derived and indirect measurements.	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.

Content Standard 6: Students demonstrate understanding of and an ability to use data analysis, probability, and statistics.	
Benchmarks: End of Grade 8	
Students will: 1. systematically collect, organize, and describe data.	***FlyBy Math™* Activities** --Conduct simulation and measurement for several aircraft conflict problems. --Represent distance, rate, and time data using tables, line plots, bar graphs, and line graphs.
2. construct, read, and interpret tables, charts, and graphs.	--Represent distance, rate, and time data using tables, line plots, bar graphs, and line graphs.

	--Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions.
5. make predictions based on experimental results or probabilities.	--Predict the relative motion of two airplanes on given paths. --Predict outcomes and explain results of mathematical models and experiments.

Content Standard 7: Students demonstrate understanding of and an ability to use patterns, relations and functions.	
Benchmarks: End of Grade 8	
Students will: 2. describe and represent relationships with tables, graphs, and rules.	***FlyBy Math*™ Activities** --Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
3. analyze functional relationships to explain how a change in one quantity results in a change in another.	--Interpret the slope of a line in the context of a distance-rate-time problem. --Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.
4. use patterns and functions to represent and solve problems.	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios. --Represent distance, speed, and time relationships for constant speed cases using linear equations and a Cartesian coordinate system.
5. describe functions using graphical, numerical, physical, algebraic, and verbal models or representations.	--Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.